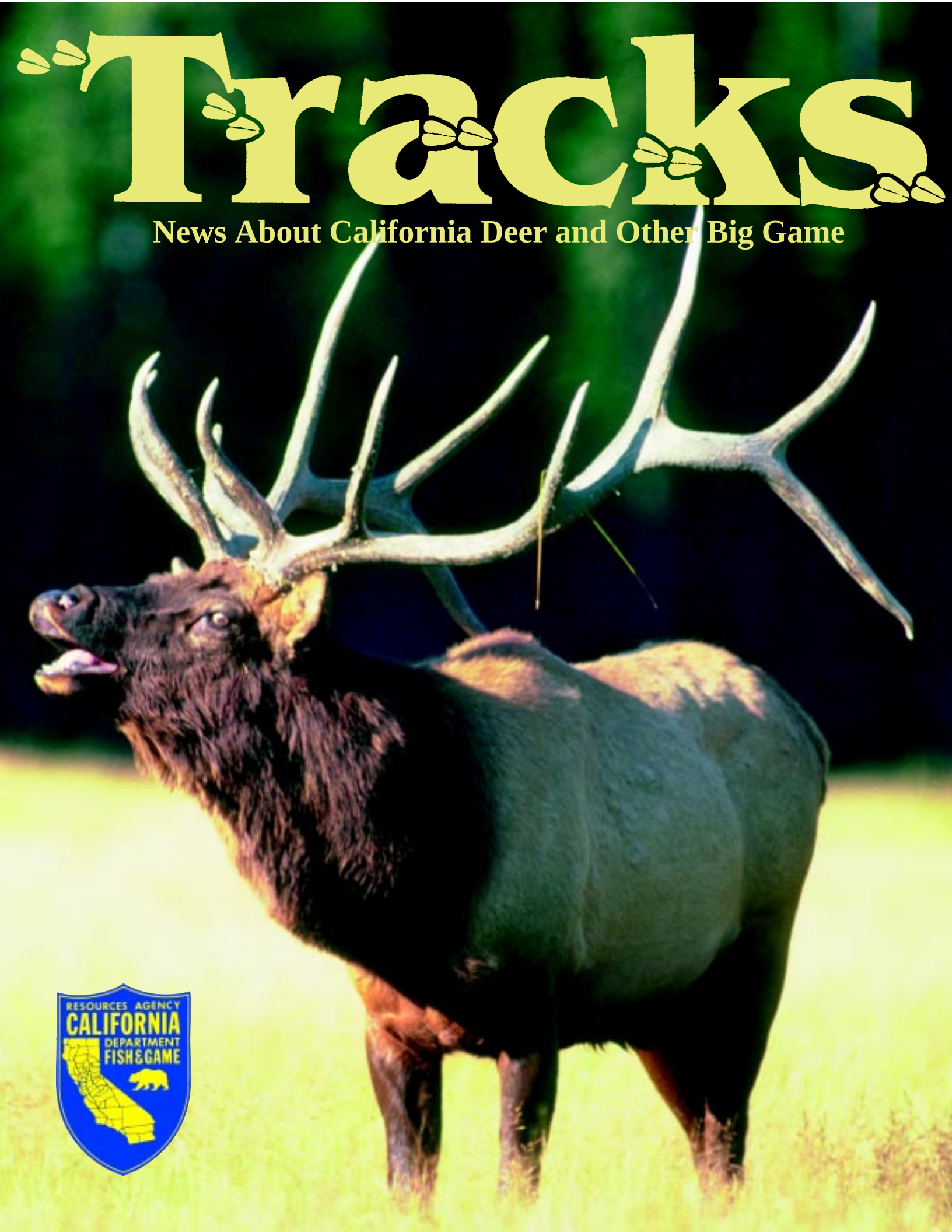
Tracks

News About California Deer and Other Big Game



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Annual Deer Herd Forecast

by Paul Wertz

The "weather gods" have favored most deer herds in California with good precipitation and relatively mild winters for the past three years. The same forces, however, visited hunters in many areas with hot, dry conditions that tended to stifle hunting and "save" a lot of bucks in 1998.

Thus, the stage is set in 1999 for potential improvement in the kill, especially in the large Zone A and in many of the central and southern California D zones. Some of the traditional strongholds of deer—those in the northeastern X zones and in portions of northern C and B zones—remain static to sub-par.

Under California's predominantly bucks-only hunting regimen, hunters will again this year kill about 40% to 45% of each herd's bucks two years old and older. The buck kill will represent about 6% of the herd's total deer numbers.

Forage and water conditions are rated high throughout most of California for 1999. In the north, generous snowpacks and average precipitation will permit deer to spread themselves across large areas. Water may be a little harder to find in some central and southern zones, especially during late-summer and fall hunts.

Last year's estimated statewide buck harvest was 32,747, compared with 37,548 the year before. The estimated kill has ranged from the low 30,000s to the mid 40,000s over the past decade.

While hunters understandably find themselves attentive to planning their 1999 hunts and to whatever information they can gather on deer abundance and strategies, state wildlife agencies, including the DFG, must look both at the short and long term portions of the deer management process.

In California and neighboring western states, biologists report that a subtle, seemingly relentless trend in the condition of mule deer habitats is eroding herd sizes virtually everywhere. Sophisticated logging practices, fire suppression techniques, land development and the liberal grazing of livestock on public lands are cited as prime reasons.

In the northeastern Great Basin habitats where the stately Rocky Mountain mule deer reside, a complicated habitat drift away from shrub communities to habitats dominated on summer ranges by timber and on winter ranges by juniper and such exotic species as the hated cheatgrass is not helping the morale of hunters or biologists.

Deer numbers are down in most northeastern areas and, likely as not, will continue to drag tag quota numbers down with them.

Biologists puzzled by the slow recovery of northeastern herds that were hammered by the deadly winter of 1992-93 theorize that the winter killed huge numbers of very young and very old does, leaving behind a population of two- to five-year-old does which are now succumbing to plain old age.

The good news is that with consistently plentiful rainfall and snowfall, and the good they have done for deer forage, surviving animals are in exceptional condition. Bucks with large bodies and heavy antlers have been seen in many of the X zones during DFG aerial surveys.

Over the Cascade Range in the central and western C and B zones, deer declines are not linked to any single event (such as the '92-'93 winter), but rather to a steady decline blamed largely on man's decision to prevent fire from opening forest floors to sunlight and deer shrub production.

"The habitat is squeezing the deer out," said one biologist.

Added another, "In other words, burn it and the deer will come."

But, it doesn't burn and where loggers used to cut trees and go away, modern timber management now cuts trees, burns the unused slash and sprays herbicides on the new, early-stage plant species that try to reestablish something edible for deer. Old, sloppy clear-cuts—while not always good for keeping mud out of salmon and steelhead streams—were pretty desirable for deer, biologists point out.

Of course, hunters buy licenses not just to support the DFG's effort to protect and improve California wildlife, but also for the outdoor recreation it gives them. So, while the western states' deer management struggles continue, the approaching 1999 hunting seasons beg for some comment.

As always, weather will be a big factor in hunter success. Cool or—even better—wet weather can push

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Managing For Fewer Deer

by Jack Booth

The deer population in the Mendocino National Forest is expected to decline as a result of sound forest management. Yes, you read that correctly. If public land managers meet their objectives, the Mendocino deer herd will decrease. Read on, as DFG deer biologist Jack Booth explains why.

If you hunt deer or any other game species on a National Forest you should be interested in how the habitat is managed; after all, habitat quality dictates deer numbers. The time to speak up for deer is when a national forest prepares its "Forest Plan," which guides management activities for the next 15 years.

Forest plans are required for every national forest. Each plan describes how that forest will be managed and, in turn, which species of wildlife will benefit and which will lose. The plans dictate how many acres will be managed primarily for timber production, livestock grazing, late successional reserves—known as "old growth"—and other uses of the forest.

During the planning process, each national forest holds public meetings to solicit input regarding the management plan. When the U.S. Forest Service was preparing a management plan for the Mendocino forest, it received a total of 1,469 comments from the public and other agencies. Only one comment specifically expressed concern for deer and their habitat. The comment came from the Department of Fish and Game. More than 140 comments dealt with spotted owls; 85 percent of those requested increased acreage and protection of spotted owl habitat. Of the several hundred comments on "old growth," over 90 percent supported increased protection. Why was there only one comment about deer? Does that truly reflect the public's level of concern about deer numbers?

Deer and many other wildlife species require what's called "early successional habitat"—which is at the opposite end of the spectrum from old growth. Early successional habitat is the grass, shrubs and other plants that sprout after a forest fire or some other type of disturbance. This early successional habitat is essential for providing the forage deer need to thrive. As the habitat matures, the brush, forbs and grasses are replaced by coniferous trees. The resulting shade forms a "closed canopy" over the forest, restricting the growth of nutritious deer forage.

The Forest Service has since adopted a management plan for the Mendocino Forest which embraces the desires *expressed* by the public. Deer habitat did not make the top of the list of management objectives. In fact, the forest plan predicts that "deer habitat capability" will decline by nearly three percent within ten years. That, of course, translates into fewer deer.

The Mendocino National Forest is not unique in the way it has set its management priorities. All national forests that are important deer habitats in California are, for the most part, managed for timber production, livestock grazing and other uses that don't benefit deer.

Hopefully you are now interested in how your forest is managed, and are wondering what you can do to make deer a higher priority in forest management plans. A phone call to the forest supervisor is a simple and effective means of communicating your desire to see more deer in the forest.

The forest supervisor is required to review the forest plan at least every five years to determine whether conditions or demands from the public have changed significantly. If only ten percent of the deer hunters that hunt in a particular forest became involved, the Forest Service would have to address those concerns.

At right is a list of telephone numbers for all Forest Service offices in California. A complete list of addresses and home pages can be found on the Internet at http://www.r5.fs.fed.us.

The information presented here was taken from the Final Environmental Impact Statement for the Land and Resource Management Plan, Mendocino National Forest.

Jack Booth is a DFG wildlife biologist in Mendocino County.

Photo by Jason Herrick

California
Deer
Association
820 Park Row Suite 671
Salinas, CA 93901
(831) 757-0142

U.S. Forest Service Offices

Angeles National Forest
818-574-5209

Cleveland National Forest
619-673-6180

Eldorado National Forest
530-622-5061

Inyo National Forest
760-873-2400

Klamath National Forest
530-842-6131

Lake Tahoe Basin
Management Unit
530-573-2600

Lassen National Forest
530-257-2151

Los Padres National Forest
805-683-6711

Mendocino National Forest
530-934-3316

Modoc National Forest
530-233-5811

Plumas National Forest
530-283-2050

San Bernardino National Forest
909-383-5588

Sequoia National Forest
209-784-1500

Shasta-Trinity National Forests
530-246-5222

Sierra National Forest
209-297-0706

Six Rivers National Forest
707-442-1721

Stanislaus National Forest
209-532-3671

Tahoe National Forest
530-265-4531

Survey Says ...

Thanks to all of you who took the time to respond to the reader survey that appeared in the 1998 issue of Tracks. We received 556 responses, which are summarized below. As a result of your input, we're giving you more of what you asked for: an expanded deer forecast, more statistics from previous year's hunts, and more game management articles, to name a few.

As promised, we chose 20 survey responses at random to receive a "cool gift." The gifts were generously donated by **Buck Knives** (the knife pictured below) and the **California Deer Association** (a one-year membership). Both will come in handy this hunting season.

How long have you hunted?

1-4 years	0.5%
5-10 years	5.3%
11-20 years	11.0%
more than 20 years	82.8%
I don't hunt	0.5%

How long have you been a Tracks reader?

1-2 years	14.4%
3-4 years	20.6%
5 or more years	45.5%
first issue I've read	19.6%

Where do you typically obtain your copy of Tracks?

Sporting goods/ bait & tackle store	29.2%
drug/discount department store	2.4%
DFG office	67.9%

How useful is the information in Tracks?

very useful	54.1%
somewhat useful	42.6%
not very useful	3.3%

I am :

male	96.2%
female	3.8%

My age is:

under 18	0.0%
18-25	2.4%
26-35	7.7%
36-45	18.7%
46-55	26.8%
over 55	44.5%

How much do you spend each year on hunting, including licenses, tags, travel expenses, food, lodging and equipment?

under $100	1.4%
$100-$500	20.1%
$501-$1,000	27.8%
over $1,000	50.7%

One of the "Cool Gifts":
Buck's Crosslock™ 3-Function Hunter
This versatile hunting knife opens and closes with one hand. Two blades, three functions: 3-1/4" drop-point and 3-1/4" gutting/skinning blade with a saw on the back edge. Model 180D3 retails for $78.

Which of the following species have you hunted in California?

Deer	98.6%
Elk	9.1%
Pronghorn	23.9%
Bighorn Sheep	0.5%
Wild Pig	63.2%
Bear	36.8%
Waterfowl	66.5%
Upland Game	90.4%

Which of the following species have you hunted outside California?

Deer	75.1%
Elk	56.5%
Pronghorn	30.6%
Bighorn Sheep	3.8%
Wild Pig	4.3%
Bear	12.4%
Waterfowl	22.5%
Upland Game	41.6%

Indicate your interest in these topics:

	Very Interested	Interested	Neutral	Not Very Interested	Not At All Interested
Annual deer herd forecast	79.9%	18.2%	0.5%	0.0%	1.4%
Statistics from previous year's hunts	72.7%	20.6%	2.9%	0.0%	3.8%
Where to hunt on public land	57.9%	21.5%	8.1%	3.8%	8.6%
"Ask a wildlife biologist" column	38.3%	33.5%	19.6%	1.9%	6.7%
Big game management projects	43.5%	38.8%	12.0%	0.5%	5.3%
Elk stories	20.6%	29.7%	25.8%	10.5%	13.4%
Pronghorn antelope stories	14.8%	28.7%	29.2%	12.9%	14.4%
Bighorn sheep stories	11.0%	25.8%	30.1%	15.3%	17.7%
Hunter success stories and photos	23.4%	35.4%	21.1%	10.0%	10.0%
Recipes and tips on cooking big game	25.8%	25.8%	23.0%	9.6%	15.8%

Wardens Bust Statewide Bear Poaching Ring

By Liz Schwall

Some things never change . . . fish swim, ducks quack, and poachers poach. Statewide, crime is down and happily, the crime of poaching appears (based on citation numbers) to be following that trend. Nevertheless, the war is far from won and the state's wardens continue to wage battles daily against those who steal one of our most precious natural resources: our wildlife. Here is a recently concluded case from the DFG files. The fines imposed on the criminals in this case may be the highest in California history for a wildlife-related case.

In 1995, disturbing information surfaced regarding bear poaching in Shasta, Siskiyou and Trinity Counties. Reports from various sources indicated that bear gall bladders were being sold on the "black market." It is a felony to sell or barter wildlife or wildlife parts in California. Bear gall bladders, in particular, are highly sought-after because of their purported medicinal value. In certain cultures, dried, ground gall bladders are used to treat everything from migraines to impotence. Redding game wardens Dave Szody and Lieutenant Steve Callan were put in charge of the case and immediately began formulating a plan of attack.

Putting his best acting skills to use, warden Al McDermott assumed an undercover identity and was able to quickly infiltrate the ring. McDermott was soon dealing with one of the primary "players," going on bear hunts and participating in sales of bladders to the suspect. McDermott acquired his gall bladders from road-killed bears that had been collected by the DFG. McDermott noted with disgust that this band of thieves did not stop at bear poaching. Throughout the course of this three-year operation, the undercover officers observed many different wildlife violations as well as narcotics trafficking.

As McDermott immersed himself in the role, it became increasingly clear that the scope and range of this poaching ring was widening. By late 1995, new information surfaced regarding the illegal activities of a Los Angeles hunting guide by the name of Ye (Kevin) Taek Lim.

Officers Szody and Callan contacted the U.S. Forest Service and secured the services of special agent Don Hoang. Agent Hoang received some speedy "bear training" from the DFG and then set out to book a hunt with Kevin Lim. Introducing himself as a graduate student from Cal-State University, Fresno whose parents ran a lucrative herbal medicine business in Bangkok, Thailand, Hoang made inroads quickly. After jokingly asking Hoang if he worked for Fish & Game, Lim agreed to guide the agent on a north state bear hunt. Soon local Shasta County houndsmen were soliciting Agent Hoang to buy bear galls. Several purchases were made and numerous other violations were documented.

Nothing is harder for an undercover game warden than to stand by and watch violations being committed. So it was with relief that the operation was shut down in 1997. Officers Szody and Callan took on the exacting task of putting the case together for the district attorney. When it was all said and done, some of the poachers went to jail and all of them were hit hard in the pocketbook.

The Los Angeles guide/buyer Ye (Kevin) Taek Lim was charged with 16 felony counts of illegal sale of bear parts, and fourteen misdemeanor counts. Through a plea agreement, Lim pleaded guilty and was given a three-year suspended prison sentence, five years' felony probation, one year in the Shasta County Jail and fined $20,000.

Redding resident William Eugene

This photograph, seized during a search, shows Ye (Kevin) Taek Lim holding a bear cub he killed. It is illegal to kill cubs (defined as bears less than one year old or weighing less than 50 pounds). This bear was also an overlimit, a failure to tag and a waste of game because it was left in the field.

Cummings was charged with 54 Fish and Game Code violations, including 25 felonies. He was sentenced to six months in jail, five years' felony probation and fined $54,000. In addition, Cummings's wife pleaded guilty to being an accomplice. She was fined $1,000 and given misdemeanor probation conditions.

Shasta County hunting guide David Kuykendall was charged with 14 felonies including conspiracy. He pleaded guilty to selling gall bladders and was given a 90-day jail sentence, five years' felony probation, a $9,990 fine and ordered to pay $5,500 in restitution to the DFG.

Another local man, Kenneth Smith, was charged with four felonies, conspiracy and the taking of a protected species—a fisher. He pleaded guilty to selling gall bladders and taking a fisher. He was given a 120-day jail sentence and ordered to pay nearly $12,000 in fines and restitution. To top it off, Smith was convicted of possessing marijuana for sale—a felony. The marijuana was found during the serving of a search warrant in connection with this case.

Twelve more men were also charged with misdemeanors in connection with this investigation. Their fines totaled over $6,000. All told, More than $110, 000 in fines and over two years of jail time were ordered. This case represents what may be the highest wildlife related dispositions in California history.

It's your call; don't let poachers steal your wildlife! Report poaching and polluting to CalTIP. The 24-hour, toll-free number is 1-888-DFG-CALTIP.

Liz Schwall is a DFG warden and statewide coordinator of the CalTIP program.

Record Price Paid For Grizzly Island Tule Elk Tag

Each year, selected non-profit organizations are allowed to sell big game tags at their fund-raising events. Early in 1999, a Grizzly Island tule elk tag was auctioned for a record $33,000. The premium price may be due, in part, to the creation of a new tule elk category in the Boone and Crockett Club (see story on page 19).

California's wildlife will benefit from the auction revenue, since all of the money raised through the sale of the tags goes into the DFG's management programs for those species. Below, in order of selling price, are the results of the auctions completed as of Tracks' press date:

Fund-Raising Tag	Host Organization	Amount
Bighorn Sheep	Foundation for North American Wild Sheep	$95,000
Tule Elk, Grizzly Island	Mule Deer Foundation, Central Coast Chapter	33,000
Golden Opportunity Deer**	California Deer Association, Salinas Chapter	13,000
Golden Opportunity Deer**	Mule Deer Foundation, Central Coast Chapter	9,200
Golden Opportunity Deer**	Safari Club International, San Francisco Bay Chapter	8,500
Golden Opportunity Deer**	Rocky Mountain Elk Foundation, Central San Joaquin Valley Chapter	7,500
Tule Elk, Owens Valley	Rocky Mountain Elk Foundation, Central San Joaquin Valley Chapter	6,000
Open Zone Deer*	Safari Club International, San Fernando Valley Chapter	5,400
Open Zone Deer*	California Deer Association, Chico Chapter	3,750
Open Zone Deer*	Mule Deer Foundation, Sacramento Chapter	3,700
Open Zone Deer*	Mule Deer Foundation, National	3,100
Pronghorn Antelope	Mule Deer Foundation, Central Coast Chapter	3,100
Pronghorn Antelope	Safari Club International, San Francisco Bay Chapter	3,000
Pronghorn Antelope	Rocky Mountain Elk Foundation, Central San Joaquin Valley Chapter	2,700
Open Zone Deer*	Safari Club International, Orange County Chapter	2,000
Golden Opportunity Deer** Tule Elk, Grizzly Island Pronghorn Antelope	California Deer Association, San Jose Chapter	To be autioned May 8, 1999

* Open Zone Deer Tag: Valid for all zones as well as additional deer hunts and area-specific archery hunts within specified season dates and methods of take.

** Golden Opportunity Deer Tag: Valid statewide from July 11, 1999 through January 31, 2000.

Black Bear Study: Six Years And Still 'Humming'

by Paul Wertz

Humming sounds are good. Clacking sounds are not so good.

That is part of the store of practical information DFG wildlife biologists took with them in their search for black bear dens during the 1999 winter.

"Bear cubs make a sort of humming sound when they nurse and if we hear it, we can usually tell before we open up the den whether there are one or two cubs," said Rich Callas, DFG biologist in Siskiyou County who is part of a 10-year, north state bear study.

Digging through snow and other material to open a den is often required in the study, but there are good reasons to avoid the action when the den contains a sow and cubs, according to Callas.

He learned that a biologist can find himself wedged head first, downhill in a den opening—and suddenly discover the tranquilizing injection didn't exactly put "mom" to sleep.

"It was pretty frightening when the sow turned her head toward me and clacked her teeth," he said.

"I couldn't back up very easily. Fortunately, the others outside heard the clacking sound and pulled me out by my ankles."

The wildlife "war stories" aside, the den visits are critical to the bear study in western Siskiyou County and south of McCloud along the Siskiyou-Shasta county line because of the need for solid baseline date on the Golden State's black bear population.

From information they collect while trapping bears in the summer and visiting dens of radio-collared bears in the winter, DFG biologists learn how California's bear population is faring. Specifically, they collect data on the ages at which sows produce cubs, the survival rates of the cubs and how many years sows are productive.

The biological data helps DFG manage the state's 25,000 bears, including the annual bear hunting season. Currently, the DFG closes the fall bear season as soon as the reported bear kill reaches 1,500 animals.

The DFG uses fixed-wing flights to track the transmitter collar signals and obtain a rough idea of the locations of the den sites.

After the flights, biologists will use mechanized transportation such as snowmobiles and "snowcats"—or travel on foot—to reach the sites. If dens are in standing trees, the visiting teams usually cannot reach the bears to examine them.

Dens in hollow logs or beneath the surface under stumps and boulders normally provide access. The biologists will dig an opening just large enough to allow them to crawl inside with the bears—limiting the exposure of the sows and cubs to unnecessary stress or outside temperatures.

Callas said dens are usually very clean and dry, often lined with shavings that the sows scrape from inside hollow logs. He said bears also will bite off conifer bows and bring them into the dens to help prepare the site where, during hibernation, the sows give birth to the cubs.

For their own safety, biologists tranquilize the denned sows or sub-adult bears using a syringe attached to a long pole. If a radio-collared sow or sub-adult has a transmitter collar two years old or older, DFG will replace it with a new collar. Biologists estimate there are presently 26 live adult sows and sub-adults bears with collars. These bears are the ones that may receive winter "visitors" next year.

A glimpse inside a bear den reveals a sow nursing her cub while hibernating. The sow was trapped during the summer and given a radio telemetry collar so that researchers could locate her in her winter den. Photo by Bob Stafford.

Paul Wertz is an information officer in the DFG's Redding office.

Understanding Deer Nutrition

by Kenneth E. Mayer

If there's one thing professional deer managers agree on, it's the importance of high quality habitat in producing healthy deer populations. Severe winters, predation and disease can and do affect populations in some areas, but habitat is the number one factor limiting mule and black-tailed deer populations in California and throughout the West.

Whether a deer population is resident or migratory, there are things that can be done to improve the quality of forage available to deer throughout the year. What can hunters do? An understanding of basic deer biology is a good first step toward understanding a deer's nutritional needs.

Deer are "ruminants," meaning they have a four-chambered stomach (rumen, reticulum, omasum and abomasum). The stomach acts like a large microbial fermentation vat. Like other ruminants, a deer stomach contains large quantities of bacteria and protozoa that, through the fermentation process, break down cellulose to useful energy products.

While mule deer are relatively large in stature, they are small compared to other ruminants—elk, for example—so they have a limited ability to digest highly fibrous food material. The fermentation process is slower with more fibrous forage. Because the deer stomach can accommodate only limited amounts of vegetation, they must have higher quality forage. If you've ever seen a deer at rest, you may have observed them chewing. Large food particles have been regurgitated from the reticulum, and the deer is chewing to break it into smaller particles. This "cud-chewing" is a characteristic of all ruminants. Reducing the size of the food particles help facilitate the microbia fermentation process, as well as passage through the remainder of the digestive system (small intestine and colon).

The main difference between deer and elk from a feeding/nutritional perspective is that deer require a relatively small amount of high quality forage dominated by shrubs. If deer can't get high levels of quality food

(continued on page 12)

Pronghorn "Round-Up"

"Round-ups," such as this event at Likely Tables in Modoc County, have been used successfully to capture "surplus" pronghorn antelope in existing populations to re-establish herds in historic ranges. Since 1985, about 800 pronghorn have been translocated to seven new locations. There have been no surplus animals to relocate since the 1992 winter die-off. Photo by Paul Wertz.

Hunters Fund "Most Successful Wildlife Restoration Program in the World"

by Alison J. Kenward

Photo by Jason Herrick

Although many hunters are unaware of it, every time they purchase a sporting rifle, shotgun, ammunition or archery equipment, part of the purchase price goes to fund wildlife restoration efforts.

That's because an 11 percent excise tax on sporting arms, archery equipment and ammunition, and a 10 percent excise tax on handguns, raises money for hunter education and wildlife restoration efforts, including research, habitat development and wildlife area operation.

Hunters and Sportsmen Initiated Conservation Efforts

Alarmed by the decline of once-abundant animal species and the destruction of habitat occurring in the early 1900s, a coalition of conservationists (most of whom were hunters), and sporting arms and ammunition manufacturers persuaded Congress to divert funds from an existing excise tax into a special fund to be distributed to states for wildlife restoration. The Federal Aid in Wildlife Restoration Act, popularly known as the Pittman-Robertson (P-R) Act after its congressional sponsors, is considered to be America's most successful conservation program. It was signed into law by President Franklin D. Roosevelt on September 2, 1937. Money collected from taxes on hunting gear is distributed to all 50 states and several U.S. territories. The U.S. Fish and Wildlife Service administers funds, and state wildlife agencies manage program projects.

Since its enactment, the P-R Program has generated over $4 billion nationwide and approximately five million acres of land have been acquired for wildlife habitat. As a result of hunters' and shooters' contributions to the program, many species have been restored to healthy numbers. At the national level, for example, the pronghorn antelope population is estimated to be 83 times greater and the wild turkey population is about 45 times greater than when this program began.

In general, program funds are spent on:

- Wildlife research;
- Acquisition of wildlife habitat;
- Restoration of wildlife and public hunting areas;
- Hunter safety courses and construction of target ranges;
- Other programs that benefit wildlife.

How Program Benefits California

Last year, the DFG received over $5.3 million in federal Wildlife Restoration funds, and has received about $125 million over the past 61 years.

Nearly two-thirds of this funding was used to operate 13 wildlife areas statewide, as well as a habitat development crew. The 13 wildlife areas comprise over 200,000 acres, including 44,000 acres of managed wetlands. These lands support upland game, several million waterfowl, and many other wildlife species, including threatened and endangered species. All of the wildlife areas that receive support from P-R funds offer hunting and other recreational opportunities; in fact, over 450,000 recreation "user-days" are provided at these areas each year.

Another 15 percent of the 1998 P-R funds supported hunter education efforts. P-R dollars train about 21,000 hunters in California each year.

Twenty-one percent of the 1998 P-R funds supported important research projects which provide critical information on population sizes and habitat needs of many species, including big game, upland game, waterfowl, and a variety of non-game species, including threatened and endangered species and species of special concern. Examples of ongoing research on California's big game include:

- black bear population assessments;
- tule elk, Roosevelt elk and Rocky Mountain elk population assessments;
- surveys of bighorn sheep;
- population assessments of pronghorn antelope.

So the next time you purchase a rifle, shotgun, ammunition or archery equipment, remember that you're helping big game and other wildlife in California.

Alison Kenward works for DFG's Upland Game Program.

Deer Herd Forecast
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up the buck kill substantially. The more traditional California autumn with its hot, dry conditions can limit the daytime activity of both deer and hunter.

Here, in six zone groups, are the DFG's best estimates of what is ahead for California deer hunters in 1999.

Despite miles of former deer habitat now overwhelmed by human habitat, the deep southern California zones of D11 through D19 and the southern half of the huge Zone A promise to give hunters a little more for their money in 1999. Surveys indicate forage plants have prospered and deer numbers are up.

Part of the potential upswing is linked to the relatively poor hunting weather of last year, which in typical fashion turned many deer into nocturnal animals and discouraged hunters from trying to root bucks out of deep brush pockets. Buck "carryover" is always an element in a given hunting season, according to biologists.

For zones along both sides of the Sierra Nevada—generally, zones D5-D10 and X9a-X12—there is a similar report of improved deer numbers and of good shrub growth and water supplies. Zone X8 is a notable exception, with biologists reporting a serious decline in deer numbers and the likelihood of a major tag quota reduction—thanks to failing winter range and land development.

Hunters who ply their sport within the northern reaches of Zone A and throughout zones B1 and B4 are expected to find herds and habitats very much as they have been for years. Deer numbers remain good and the usually generous winter rains have provided all the forage possible in a fire-free environment.

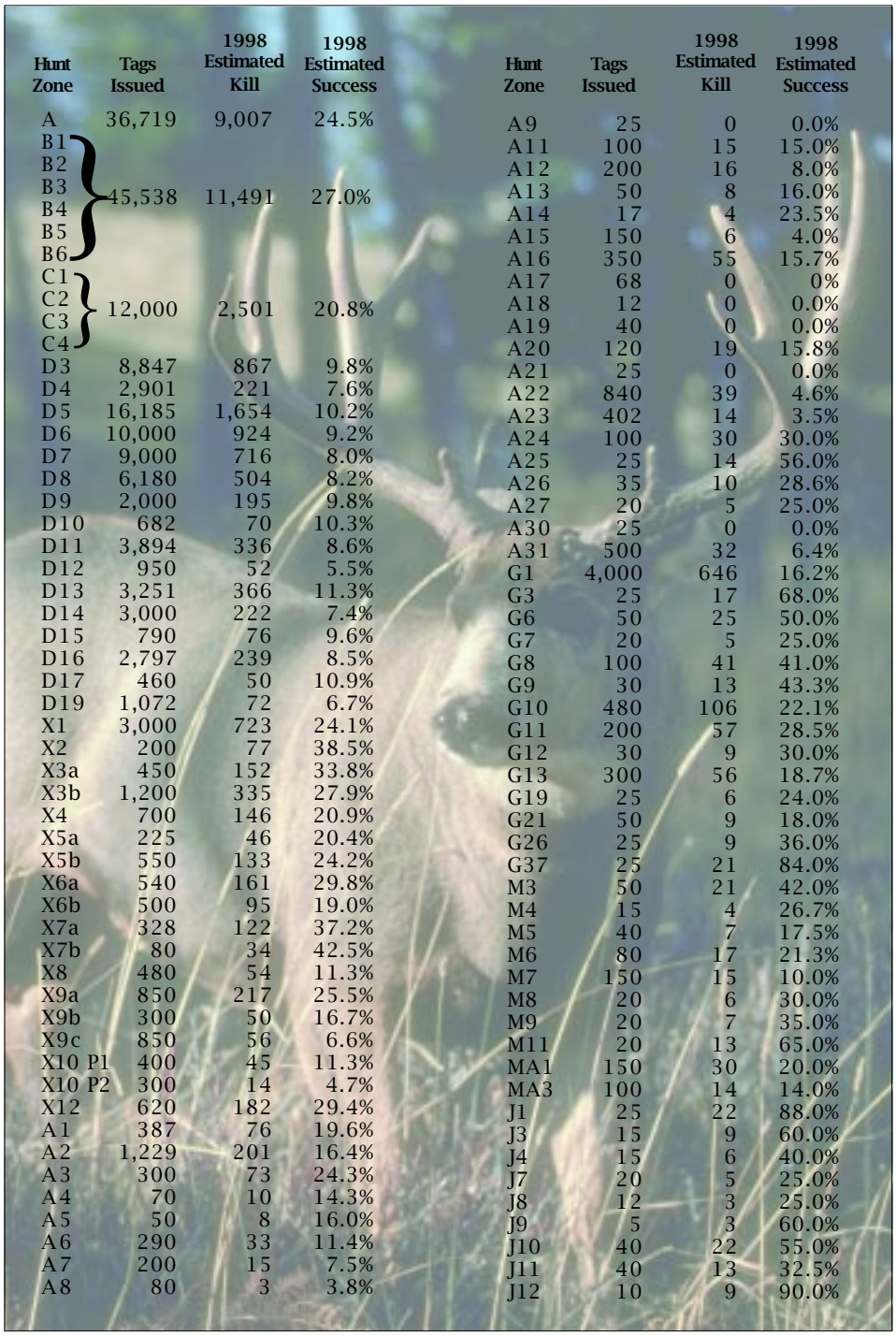
Weather will be especially important for the northwest hunting seasons. Most herds, but not all, are resident rather than migratory. They do engage in some movement based on the "heat index" and the late-season locations of choice forage.

The remaining four B zones are in a slightly declining mode, again thanks to forests growing thicker with managed conifer groves and to fire suppression that sees to it no sunlight reaches the forest floor's shrinking shrub communities. Water conditions are excellent again this year and plant leader growth is good wherever plants get a peak at the sun.

The central north state's four C zones are best described as static. Predominantly black-tailed deer areas, the zones have received a good supply of precipitation this year, but continue to lose deer forage to the same culprits—forests managed for timber and man's anti-fire obsession. Early storms could boost the buck kill a little.

California's northeastern corner and its 11 zones—X1 through X7b—remain a disappointment. Herd sizes have advanced little, if any, since the devastating snows of 1992-93 and may have suffered a sudden and large loss of older-aged adult does that were the prime survivors of the winter six years ago.

On the positive side, bucks seen during fall ground and aerial surveys impressed biologists with their body size and antler growth. Water and existing forage are in good shape throughout the zones. Still, the sliding deer numbers are expected to force further cuts in tag quotas.



Hunt Zone	Tags Issued	1998 Estimated Kill	1998 Estimated Success
A	36,719	9,007	24.5%
B1			
B2			
B3	45,538	11,491	27.0%
B4			
B5			
B6			
C1			
C2	12,000	2,501	20.8%
C3			
C4			
D3	8,847	867	9.8%
D4	2,901	221	7.6%
D5	16,185	1,654	10.2%
D6	10,000	924	9.2%
D7	9,000	716	8.0%
D8	6,180	504	8.2%
D9	2,000	195	9.8%
D10	682	70	10.3%
D11	3,894	336	8.6%
D12	950	52	5.5%
D13	3,251	366	11.3%
D14	3,000	222	7.4%
D15	790	76	9.6%
D16	2,797	239	8.5%
D17	460	50	10.9%
D19	1,072	72	6.7%
X1	3,000	723	24.1%
X2	200	77	38.5%
X3a	450	152	33.8%
X3b	1,200	335	27.9%
X4	700	146	20.9%
X5a	225	46	20.4%
X5b	550	133	24.2%
X6a	540	161	29.8%
X6b	500	95	19.0%
X7a	328	122	37.2%
X7b	80	34	42.5%
X8	480	54	11.3%
X9a	850	217	25.5%
X9b	300	50	16.7%
X9c	850	56	6.6%
X10 P1	400	45	11.3%
X10 P2	300	14	4.7%
X12	620	182	29.4%
A1	387	76	19.6%
A2	1,229	201	16.4%
A3	300	73	24.3%
A4	70	10	14.3%
A5	50	8	16.0%
A6	290	33	11.4%
A7	200	15	7.5%
A8	80	3	3.8%

Hunt Zone	Tags Issued	1998 Estimated Kill	1998 Estimated Success
A9	25	0	0.0%
A11	100	15	15.0%
A12	200	16	8.0%
A13	50	8	16.0%
A14	17	4	23.5%
A15	150	6	4.0%
A16	350	55	15.7%
A17	68	0	0%
A18	12	0	0.0%
A19	40	0	0.0%
A20	120	19	15.8%
A21	25	0	0.0%
A22	840	39	4.6%
A23	402	14	3.5%
A24	100	30	30.0%
A25	25	14	56.0%
A26	35	10	28.6%
A27	20	5	25.0%
A30	25	0	0.0%
A31	500	32	6.4%
G1	4,000	646	16.2%
G3	25	17	68.0%
G6	50	25	50.0%
G7	20	5	25.0%
G8	100	41	41.0%
G9	30	13	43.3%
G10	480	106	22.1%
G11	200	57	28.5%
G12	30	9	30.0%
G13	300	56	18.7%
G19	25	6	24.0%
G21	50	9	18.0%
G26	25	9	36.0%
G37	25	21	84.0%
M3	50	21	42.0%
M4	15	4	26.7%
M5	40	7	17.5%
M6	80	17	21.3%
M7	150	15	10.0%
M8	20	6	30.0%
M9	20	7	35.0%
M11	20	13	65.0%
MA1	150	30	20.0%
MA3	100	14	14.0%
J1	25	22	88.0%
J3	15	9	60.0%
J4	15	6	40.0%
J7	20	5	25.0%
J8	12	3	25.0%
J9	5	3	60.0%
J10	40	22	55.0%
J11	40	13	32.5%
J12	10	9	90.0%

Deer Nutrition continued from page 9

during the spring, summer and early fall, they lose body fat and may not survive the winter.

Bucks and does have adapted different strategies to meet their specific nutritional needs. Bucks specialize in selecting and digesting highly nutritious forage. This selectivity is directed toward growing to maximum size to prepare for the rut. During the spring, summer, and early fall, a buck's job is to store as much fat as possible. During the rut, bucks often eat very little, instead drawing on their fat stores for energy. When bucks enter the rut in poor—or even fair—condition, there is a higher winter mortality rate. Bucks will also grow smaller antlers when forage is inadequate.

Does have their highest energy demand in the spring and summer when they are in the final trimester of pregnancy and are lactating to feed their fawns. The doe's job is to optimize fawn growth. The smaller the fawn, the higher the chance of mortality. A doe's protein intake affects her reproductive success. Her overall health condition will heavily influence the survival of the fawn born in late spring or early summer.

Deer depend on their ability to maintain a positive energy balance over an extended period. However, during the winter deer voluntarily reduce food consumption. Weight-loss will typically occur even if there is abundant food.

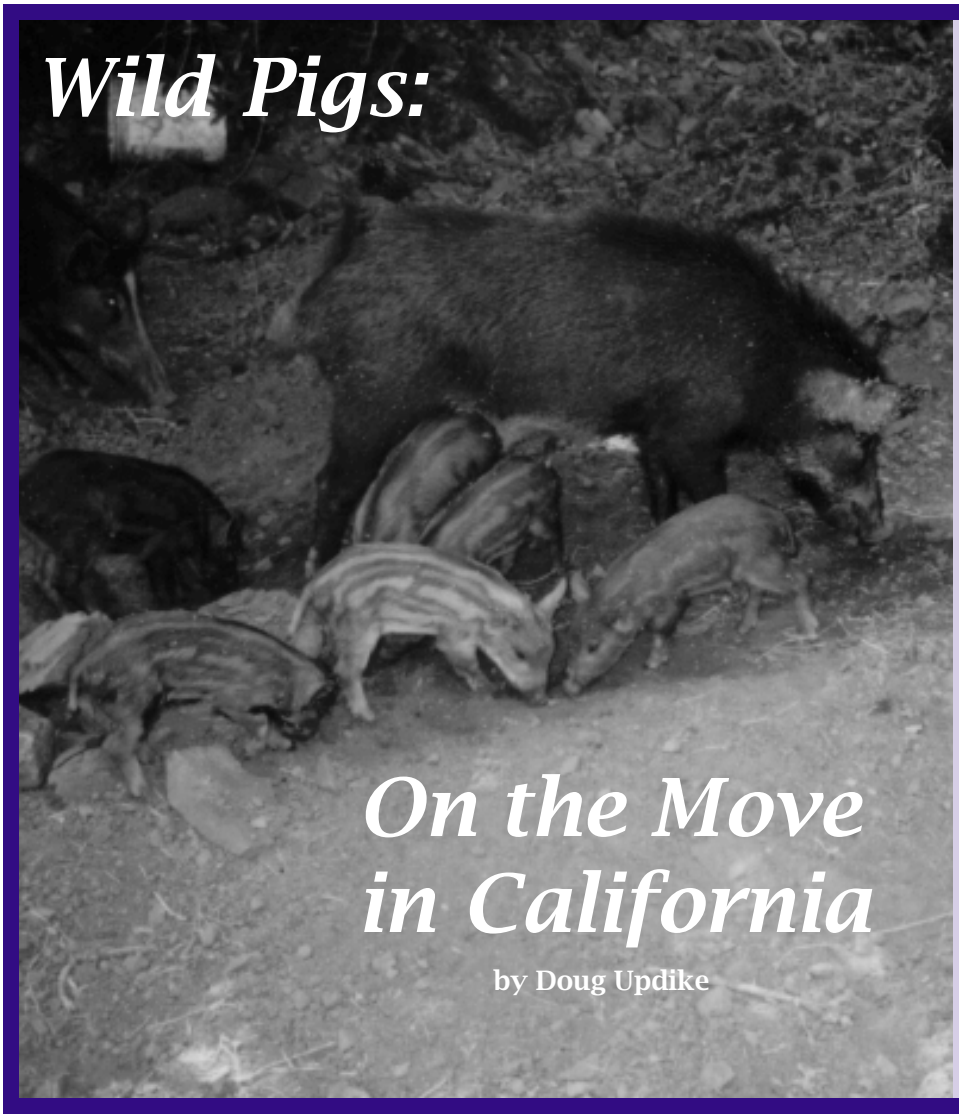
In the spring, deer ranges must provide protein-rich forage that addresses the deficits a deer has experienced during the winter. Nutritious forbs, grasses and growing shrubs are key components. Summer forage should meet the demands of milk production of does and permit all deer to grow and build fat stores. During the fall, carbohydrate-rich foods like acorns, and high protein food elements like mistletoe and fungi, play a role in delaying the depletion of fat stores. And finally, winter forage provides the base that minimizes energy loss and fat depletion that often dictates whether a deer lives or dies under harsh environmental conditions.

Kenneth E. Mayer is the DFG statewide deer program coordinator.

Reported Wild Pig Take 1993 - 1998

	'92-93	'93-94	'94-95	'95-96	'96-97	'97-98
County (TOTAL SQUARE MILES)						
Humboldt (3,573)	111	73	32	33	26	43
Modoc (4,092)	0	0	1	0	0	0
Shasta (3,798)	64	53	22	33	22	53
Siskiyou (6,312)	10	9	8	12	12	21
Tehama (2,976)	308	304	284	265	267	378
Trinity (3,191)	27	55	17	14	21	23
Northern Totals	**520**	**494**	**364**	**357**	**348**	**518**
% of Statewide Harvest	**11.6%**	**9.5%**	**7.8%**	**6.8%**	**7.5%**	**9%**
Amador (593)	0	2	0	0	0	1
Butte (1,663)	3	2	2	0	1	0
Calaveras (1,027)	1	0	3	2	3	6
Colusa (1,153)	66	63	34	76	73	151
El Dorado (1,714)	1	1	0	0	0	0
Glenn (1,317)	12	24	21	26	23	51
Nevada (978)	7	11	5	7	4	17
Placer (1,424)	3	1	0	2	6	2
San Joaquin (1,409)	6	6	10	21	13	24
Solano (827)	23	21	16	36	26	30
Sutter (607)	59	59	24	17	31	64
Yolo (1,034)	0	0	1	4	3	4
Yuba (637)	0	7	3	1	1	4
Central Sierra Totals	**181**	**197**	**119**	**192**	**184**	**354**
% of Statewide Harvest	**4.1%**	**3.8%**	**2.66%**	**3.7%**	**4.0%**	**6.4%**
Alameda (733)	25	32	39	48	48	64
Contra Costa (734)	14	8	5	8	7	9
Lake (1,256)	98	83	56	43	33	42
Mendocino (3,507)	634	652	371	339	290	299
Monterey (3,324)	778	859	887	1011	935	1185
Napa (758)	122	138	83	80	75	66
San Benito (1,396)	226	263	289	394	371	354
San Luis Obispo (3,316)	252	422	467	600	529	518
San Mateo (454)	0	1	1	1	0	1
Santa Clara (1,302)	380	604	816	751	538	600
Santa Cruz (439)	24	59	66	61	48	53
Sonoma (1,579)	849	851	394	458	375	377
Central Coast Totals	**3402**	**3972**	**3474**	**3794**	**3249**	**3568**
% of Statewide Harvest	**76.0%**	**76.0%**	**75.2%**	**72.4%**	**70.1%**	**65.0%**
Fresno (5,964)	45	102	100	160	160	270
Kern (8,152)	33	15	20	44	89	143
Kings (1,395)	13	8	6	6	3	5
Madera (2,144)	9	14	14	33	30	30
Mariposa (1,455)	18	30	40	53	61	72
Merced (1,982)	21	43	36	41	33	50
Stanislaus (1,500)	55	61	75	154	143	182
Tulare (4,838)	48	68	58	71	104	90
Tuolumne (2,274)	3	1	2	2	0	0
Southern Sierra Totals	**245**	**342**	**351**	**564**	**623**	**842**
% of Statewide Harvest	**5.5%**	**6.5%**	**7.6%**	**11%**	**13.5%**	**15.3%**
Los Angeles (4,060)	21	42	43	54	28	12
Riverside (7,177)	8	9	30	9	7	7
San Bernardino (20,131)	2	2	2	1	1	3
Santa Barbara (2,738)	94	162	226	254	188	183
Ventura (1,851)	2	4	6	7	1	5
Southern Totals	**127**	**219**	**307**	**325**	**225**	**210**
% of Statewide Harvest	**2.8%**	**4.1%**	**6.6%**	**6%**	**4.82%**	**3.87%**
Total Harvest Statewide *	**4,475**	**5,225**	**4,617**	**5,238**	**4,633**	**5,494**

***This represents only about 15 percent of the total actually harvested, due to the low rate of tags returned by successful hunters.**



Wild Pigs: On the Move in California

by Doug Updike

The recent information from the returned wild pig license tags shows some interesting trends that may indicate changes in wild pig distribution and abundance. The reported wild pig take from July 1, 1997 through June 30, 1998 is higher than any previous year. The 5,494 wild pigs taken during that time is 18% higher than the number (4,633) reported during the previous year.

The wild pig harvest reported through tag returns (see table on page 12) seems to suggest that more pigs are occurring in the northern state and the Sierra Nevada. The percentage increase is most dramatic for the Sierra Nevada, especially in Colusa, Glenn, Sutter, Fresno and Kern counties. In the north, the most significant increases occur in Shasta, Tehama and Siskiyou counties.

The increased reported take in these areas of the state corresponds to a lower proportion taken in the central coast area than in previous years.

Doug Updike is the DFG statewide wild pig program coordinator.

State's Deer, Elk Go High-Tech

by Paul Wertz

Some deer and elk in northern California are sporting the latest in high-tech wildlife research equipment. Eight Rocky Mountain elk, and 10 Rocky Mountain mule deer, are wearing global positioning system—better known as "GPS"—collars designed to help biologists hone their knowledge of habitat the animals like and don't like.

The collars were put on during captures in January and February, 1999 in Modoc and eastern Siskiyou counties.

Each collar will use satellite signals to record the location of the animal several times a day for six to nine months. At the end of the study period, biologists will transmit a signal to the collar that will disconnect it from the animal. Afterward, they will use a signal emitted by the collar to find and retrieve it.

Once in hand, the collars will be connected to a computer to download all the locations—expected to be accurate to within 300 feet. The data will be coupled with satellite vegetation data to identify the important elk habitats and deer habitats of northeastern California.

Data from the studies will help the DFG speak on behalf of the animals' habitat needs as land management decision are being made by federal land agencies and county planners.

photo by Richard Callas

Desert Bighorn: One For the Record Book

by Tammara Anderson

Opening the mail that day, I couldn't believe my eyes. Just like thousands of other hunters, I have been sending in my application to hunt bighorn sheep since the program had started but have never been lucky enough to draw a tag. Well, today was my lucky day!"

John Bauder, a Rancho Cucamonga resident, not only beat the odds in the tag drawing for the San Gorgonio Wilderness Area, he took the biggest sheep in California record-keeping history, with a "green" score of 182. Here is his story:

"Many of my weekends were spent scouting prior to the start of the hunting season. Finally opening day arrived. Getting into sheep country involved backpacking for long distances over rough terrain. At night it was so cold the water froze. Plus, there weren't any sheep in sight."

Bauder and three companions hunted hard without success. After two weeks, he hired professional guide Terry Anderson and were soon tracking a group of rams:

"All of us scouted the rams together that day. Within this group two rams stood out. Terry described the number one ram as having good length, mass, and symmetry. The number two ram also had good symmetry and length, without the mass. While watching them Terry said to me, 'You need to name the number one ram.' He told me that he names all of the significant and important rams. The number one ram was given the name "Moses."

Anderson continued to watch the group of sheep while Bauder returned to his job in Rancho Cucamonga. Bauder resumed the hunt a week later:

"Soon after daybreak a group of seven rams was spotted. They were coming off the mountain down to the bottom of the canyon. Moses was in this group. He seemed to be worried about something. I signaled Terry to drop down to our bellies.

"It wasn't long before Moses took two smaller rams back up the mountain and out of site. My heart sank! The number two ram was in the other group, and we didn't want to spook them. We lay in the mud in a constant rain and watched them drink from the spring for two and a half hours.

"In weather like this you start thinking, 'Just take a sheep—any sheep.' So, with Terry's legs to support my gun out of the mud, I released the safety. My finger was on the trigger, the number two ram in my sight. Terry said, 'He's nice, but he's not Moses.' The number two ram wasn't what I wanted. Moses was my goal.

After waiting out another day of bad weather, the group got a break:

"Believing that the rams were moving to higher ground we climbed the ridge opposite from them. This was an almost vertical climb. About halfway up Terry and I stopped to assess our position. To our amazement the rams were almost straight across the canyon from us feeding. Terry got out his Bushnell range finder. They were out of shooting range at 400 yards. Fortunately they moved westward across a small ravine onto a ridge finger. This narrowed my position to 314 yards from Moses. I aimed my Winchester 270 with its hand reloaded 150 grain Speer bullets, pulled the trigger, and misfired! Ejecting the bullet, I started fumbling with it to see what had gone wrong. Terry grabbed the bullet and refocused me on the task at hand. Thankfully, Moses was still in position to get a good shot. The sheep remained unaware that we were even there. I repositioned myself and fired off a second shot, this time shooting over Moses at 315 yards. He moved out of sight. I couldn't believe it. Now what?

"The number two ram was still within range. He certainly was beautiful. Just then Moses reappeared over the ridge. What luck! Terry checked his range finder; 348 yards. I placed Moses in the crosshairs of my scope, and fired! Terry was sure I hit him; I wasn't. (continued)

"We started to move toward the cliff. This was an incredibly steep and difficult climb. It took two hours to reach the area. When we all converged at the site, there were no signs of blood. Looking closer at the place where we had seen him, I saw fresh slide marks in the soft sand. As I followed the marks, there he was—70 to 75 yards from where we stood! He had dropped under the thick brush. What an exciting and emotional moment!

"I started climbing down to him. The closer I got the larger than life he became. Reaching him, I moved him from under the brush and saw that I had shot him in the center front chest area. A clean shot that exited through the left shoulder.

"Pulling out a cloth sewing tape from my pack I measured his horns. He measured 16-inch bases and a 38-inch length. Wow! Terry rough-scored him and we knew we had a new state record. I was elated with the team effort to harvest an incredible ram. Moses was perfect. He only had a small 'V' cut in the left horn. His coat was in great condition and his estimated weight was 225 pounds. It was unbelievable that such a ram could exist.

"This is one adventure that will be impossible to top. I have deepened my appreciation for the importance of having great hunting partners and a knowledgeable guide. It makes the harvest even greater when your wife is as supportive as mine about my hunting.

"I have reaped the rewards from the work done by the California Department of Fish and Game. They continue to develop the sheep program through their research and proper management. The program continues due to contributors and organizations that raise funds, increase public awareness, enhance sheep habitat, and much more through membership and volunteers. I am, and forever will be, thrilled and appreciative for the opportunity to hunt."

Tammara Anderson is the wife of professional guide Terry Anderson.

Apply For Your "Hunt of a Lifetime"

by Steve Torres

Desert bighorn sheep continue to be among the most valued big game animals in North America. California's 1998 fund-raising bighorn sheep tag sold for $150,000.

Ten additional tags will be awarded by random drawing this summer. Being drawn for one of these coveted tags is literally a once-in-a-lifetime opportunity; once you're drawn, you can't reapply. That's why it is so important to apply for the hunt zone that will provide the most satisfying opportunity for you.

If you are fortunate enough to be drawn, you will receive a wealth of information at the mandatory hunter orientation hosted by the Society for the Conservation of Bighorn Sheep* (SCBS). Included in the all-day session is information on where to hunt, where to stay, various hunting styles, taxidermy tips, photography tips, and who to call for additional information. DFG employees and SCBS volunteers will do everything they can to make your bighorn sheep hunt a top quality experience.

The hunt zones generally are public lands managed by the federal government and many are designated wilderness areas. To be successful, you should plan on several weeks of scouting and hunting.

The following information on the five hunt zones will help you decide which zone to apply for.

Marble Mountains
Old Dad/Kelso Peak
Clark/Kingston Mountains

These three zones are located in the Mojave Desert of San Bernardino County. Each area has produced numerous record book rams (Boone and Crockett score greater than 168). Access is generally good, although some of the areas are designated wilderness areas and are limited to foot and horseback only.

Each of these zones is made up of a large mountain mass, conducive to glassing large areas with binoculars.

Orocopia Mountains

The hunt zone is located in central Riverside County east of Indio. The terrain is similar to the Marble and Old Dad mountains—large mountain masses bordered by canyons. Large areas of the landscape can easily be glassed with binoculars, and access is relatively good.

San Gorgonio Wilderness

This hunt zone is a rugged, unforgiving wilderness where bighorn sheep can range from 4,000 to 10,000 feet in elevation. Access is limited and horses should be considered a requirement. Hunters need to be in very good physical condition, not only for hiking but for withstanding high altitudes. This zone represents the most challenging of all bighorn sheep hunts in California, and it offers a unique wilderness experience.

Steve Torres is the DFG statewide bighorn sheep program coordinator.

**The Society for the Conservation of Bighorn Sheep is a nonprofit organization of dedicated volunteers whose efforts over the last 30 years have provided the essential labor, funding and support that has made the DFG's bighorn sheep program a success. For more information about the SCBS call (323) 256-0463.*

Grown & Harvested

Michael Albert, Tule Elk Lone Pine Bull Hunt

Mike Bell, Round Valley Junior Buck Hunt

Mark S. Jones, Orocopia Mountains

David Horn, Zone X1

In California

The 1998 hunting season resulted in many "satisfied customers." Here are just a few who shared their experiences with us. Congratulations to last year's successful hunters ... and good luck in the upcoming seasons!

Chad Meyer, Round Valley Junior Buck Hunt

Kyler Hamann, Zone A

Ivan Haro, Zone C4

**Wayne Coughran,
Shasta-Trinity Junior Buck Hunt**

Ryan Leahy, Mount Dome Hunt

Farewell to the "Big Eye-Guard Buck"

by Paul Wertz

Above: The "big eye-guard buck," moments before death.

Right: A photograph taken in 1997—one of many images of the stately buck captured on film. Photos by Steve Guill.

Tulelake, California — On a snow covered canal levee in 18-degree weather, Steve Guill said goodbye to an old friend.

The Rocky Mountain mule deer buck—his antlers whitened by a shroud of frost and his gaunt body stretched over protruding ribs and backbone—could no longer lift his head. The only sign of life was the flick of an ear.

Two hours later he was gone.

"We were like partners," said Guill, 46, of Anderson, a wildlife photographer who has been scouring the northeastern California Great Basin habitats for deer and other wildlife photos for the past 15 years.

In a written description of his encounters with the stately buck, which he refers to simply as "the big eye-guard buck" because of the deer's unusually long antler eye guards, Guill's entry on December 7, 1998 says:

"As December 1998 approached, I wondered if I would see him. On December 7, I was driving on Hill Road looking for deer. It was cold and cloudy, but, for a change, there was no fog.

"A buck was coming out of the farm lands, so I stopped to photograph him. That's when I noticed another deer on the canal levee. Something didn't look right. As I looked through my camera lens, I observed a deer bedded down and in very poor shape.

"The backbone was noticeable. Then I saw the horns. It was the big eye-guard buck.

"As I approached him, all he could do was flick an ear. I went around in front of him and his eyes were still open. He couldn't lift his head. Somehow I hoped he saw me one last time. It was 9:15 a.m. As I left, I knew his time was up. When I came back at 11 a.m., the big eye-guard buck had died."

The death of the buck left behind for Guill nine years' worth of memories, dozens of photos and a reverence for the stately deer that evolved as the camera "hunter" made his annual treks through the rich winter wildlife scenes in and around the Tule Lake and Lower Klamath National Wildlife Refuges.

The buck with the unusually tall antler eye guards became a photo subject for Guill in five of the nine years from 1990 through 1998. He saw the animal one other year on a hillside out of photo range.

Likely the patriarch in a line of descendant deer stretching into the hundreds, the mule deer buck had beaten heavy odds by living what DFG biologists say was probably at least 11 years and possibly 13 or 14. Biologists say his inability to grind high quality food between his worn teeth probably led to his malnourished and hypothermic end.

According to deer tag returns, 40- to 50-percent of bucks killed by deer hunters each year are two years old or less. Bucks that escape hunters face predators, disease and—especially in northern California's fading deer habitat—marginal forage conditions that leave most herds with a fall ratio of about five does for every one buck.

The heroic story of the Tulelake buck will not die with him. The animal's head and antlers are being saved and plans are being made to develop a display of the mounted head, the years of photos and text describing the animal's life. A retired DFG game warden, Del Huff, is handling the taxidermy.

"In the six years that I saw him," said Guill, "his antler rack was always four by four, with the exception of 1994, when he grew five by four horns. And I never saw him with any other deer," Guill recounted.

"It just won't be the same up there without that old big eye-guard buck," he said.

DFG ANNOUNCES ...

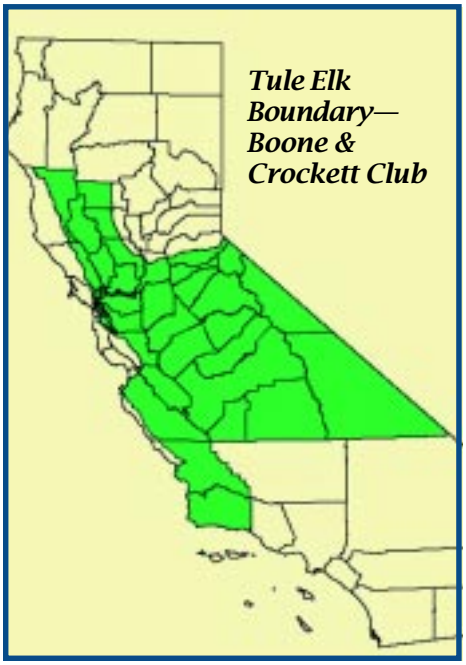
Boone & Crockett Club Adds Tule Elk Category

It's now possible to harvest a "book" tule elk, thanks to the addition of a new category to the Boone and Crockett Club's *Records Book for North American Big Game*. Tule elk will be scored following the same method as Roosevelt elk since they commonly exhibit crown points beyond the fourth tine.

The minimum scores for entering tule elk in the awards and/or all-time records books is 270 and 285 points, respectively. The map, below, shows the tule elk boundary.

According to Jon Fischer, the DFG's statewide elk program coordinator, "With those minimum scores, the larger bulls in any of the tule elk hunt zones could qualify for the records book."

For more information, contact the Boone and Crockett Club in Missoula, Montana, at (406) 542-1888.



Tule Elk Boundary—Boone & Crockett Club

Express Your Opinion!

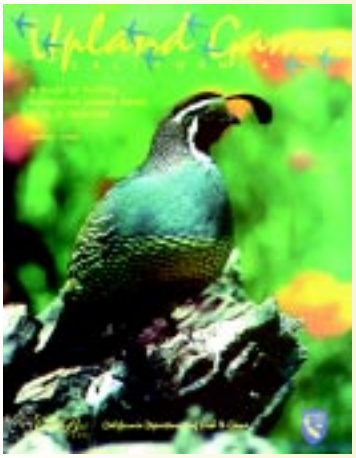
The "Managing For Fewer Deer" article on page 4 generally applies to a current U.S. Forest Service effort throughout the Sierra Nevada.

The "Sierra Nevada Conservation Framework" being developed this summer will set management priorities for forests from Modoc County to Kern County.

The first priorities will focus on enhancing old forest conditions, protecting riparian and aquatic habitats, and reducing risk of fire. The DFG supports these efforts, but has also recommended that the Forest Service give high priority to habitats important to deer, other game species, and many nongame species.

If you want to express your opinion on thie issue to the Forest Service, contact one of their offices listed on page 5, or through the Internet at: http://www.r5.fs.fed.us.

New For Upland Game Hunters!



Upland Game California made its debut in 1998 and has already proven to be very popular among upland game hunters. It's full of management articles and hunting tips for doves, turkeys, quail and other small game. It will be published twice a year, in August and February. To receive a free copy, and to be put on the mailing list for future (free!) issues, send us your name and address.

By Mail: Upland Game By Mail
1416 Ninth Street, 12th Floor
Sacramento, CA 95814
By Fax: 916-653-1019
By e-mail: akenward@hq.dfg.ca.gov

Free Hunting Guides Available

For detailed information about hunting some of California's most popular game species, consult one of these free publications: *California Turkey Hunter's Guide; Guide to Hunting the Quail of California;* and *Hunting Guide for Wild Pigs in California.*

To request a copy, contact your nearest DFG regional office or call (916) 653-GAME.

Coming soon: guides for hunting deer and doves in California.

1998 Buck Kill by Antler Class

Zone	2-Points	3-Points	4-Points	More Than 4 Points
A	64.4%	6.4%	8.6%	0.6%
B1	53.1%	30.9%	14.5%	1.6%
B2	58.2%	29.6%	10.6%	1.5%
B3	60.0%	30.2%	8.4%	1.5%
B4	54.8%	29.5%	13.9%	1.8%
B5	57.0%	33.1%	9.6%	0.3%
B6	48.9%	33.4%	14.6%	3.1%
C1	55.1%	31.5%	10.9%	2.5%
C2	46.9%	31.3%	18.4%	3.4%
C3	54.7%	27.3%	14.8%	3.2%
C4	57.6%	30.1%	11.1%	1.2%
D3	57.7%	29.1%	10.8%	2.4%
D4	59.7%	25.0%	13.2%	2.1%
D5	56.6%	29.4%	12.5%	1.5%
D6	58.2%	28.6%	11.2%	1.9%
D7	57.5%	23.6%	14.4%	4.4%
D8	55.9%	26.5%	15.3%	2.4%
D9	54.3%	29.9%	15.7%	0.0%
D10	67.8%	23.7%	6.8%	1.7%
D11	73.5%	17.0%	7.0%	2.6%
D12	18.8%	43.8%	28.1%	9.4%
D13	58.1%	30.8%	9.1%	2.0%
D14	50.7%	32.2%	14.4%	2.7%
D15	54.3%	30.4%	14.1%	1.1%
D16	69.8%	26.6%	3.0%	0.6%
D17	38.2%	26.5%	29.4%	5.9%
D19	68.1%	29.8%	2.1%	0.0%
X1	55.7%	28.8%	13.0%	2.5%
X2	26.9%	36.6%	33.3%	3.2%
X3A	38.1%	30.5%	27.1%	4.2%
X3B	47.4%	34.3%	16.0%	2.2%
X4	54.3%	26.8%	15.0%	3.9%
X5A	35.8%	39.6%	22.6%	1.9%
X5B	27.2%	34.4%	31.2%	7.2%
X6A	43.2%	36.0%	16.5%	4.3%
X6B	47.2%	31.2%	16.8%	4.8%
X7A	40.0%	37.3%	22.7%	0.0%
X7B	37.5%	40.6%	18.8%	3.1%
X8	50.0%	20.0%	25.0%	5.0%
X9A	43.2%	33.5%	19.9%	3.4%
X9B	24.1%	33.3%	33.3%	9.3%
X9C	54.5%	27.3%	13.6%	4.5%
X10P1	74.2%	19.4%	6.5%	0.0%
X10P2	46.2%	38.5%	15.4%	0.0%
X12	47.8%	36.3%	14.4%	1.5%
Statewide:	**56.7%**	**29.2%**	**12.3%**	**1.8%**

Numbers may not total 100% due to rounding.